

IN THE CLAIMS:

Please cancel claims 1-5 without prejudice or disclaimer to the subject matter therein.

Please add new claims 6-11 as follows.

6. A signal transmission and receiving apparatus for transmitting and receiving a VSB modulated signal having information of a first data stream and a second data stream, the apparatus comprising a transmission apparatus and a receiving apparatus,

said transmission apparatus comprising:

- an interleaver operable to interleave the second data stream to produce a interleaved data stream;

- a modulator operable to modulate the first data stream, without being interleaved, to an m-level VSB modulated signal and modulate the interleaved data stream to an n-level VSB modulated signal, n being an integer larger than m,

wherein the first data stream has a synchronization data; and

- a transmitter operable to transmit the m-level VSB modulated signal and the n-level VSB modulated signal;

said receiving apparatus comprising:

- a demodulator operable to demodulate the m-level VSB modulated signal to the first data stream and demodulate the n-level VSB modulated signal to a demodulated data stream,

wherein the demodulated data stream is reproduced according to the synchronization data;

and

- a de-interleaver operable to de-interleave the demodulated data stream to the second data stream.

7. A signal transmission apparatus for transmitting a VSB modulated signal having information of a first data stream and a second data stream, the apparatus comprising:

- a interleaver operable to interleave the second data stream to produce a interleaved data stream;

- a modulator operable to modulate the first data stream, without being interleaved, to an m-level VSB modulated signal and modulate the interleaved data stream to an n-level VSB modulated signal, n being an integer larger than m,

wherein the first data stream has synchronization data; and

- a transmitter operable to transmit the m-level VSB modulated signal and the n-level VSB modulated signal.

8. A signal receiving apparatus comprising:

- a receiver operable to receive a transmitted VSB modulated signal,

wherein said transmitted VSB modulated signal including an m-level VSB modulated signal and an n-level VSB modulated signal, n being an integer larger than m;

- a demodulator operable to demodulate the m-level VSB modulated signal to a first data stream having synchronization data and demodulate the n-level VSB modulated signal to a demodulated data stream, the first data stream without being interleaved and the demodulated data stream being interleaved,

wherein the demodulated data stream is reproduced according to the synchronization data;
and

- a de-interleaver operable to de-interleave the demodulated data stream to a second data stream.

9. A signal transmission and receiving method for transmitting and receiving a VSB modulated signal having information of a first data stream and a second data stream, the method comprising a transmission method and a receiving method,

said transmission method comprising:

- interleaving the second data stream to produce a interleaved data stream;

- modulating the first data stream, without being interleaved, to an m-level VSB modulated signal and modulating the interleaved data stream to an n-level VSB modulated signal, n being an integer larger than m,

wherein the first data stream has a synchronization data; and

- transmitting the m-level VSB modulated signal and the n-level VSB modulated signal;
said receiving method comprising:
- demodulating the m-level VSB modulated signal to the first data stream and demodulating
the n-level VSB modulated signal to a demodulated data stream,
wherein the demodulated data stream is reproduced according to the synchronization data;
and
- de-interleaving the demodulated data stream to the second data stream.

10. A signal transmission method for transmitting a VSB modulated signal having information
of a first data stream and a second data stream, the method comprising:
interleaving the second data stream to produce a interleaved data stream;
- modulating the first data stream, without being interleaved, to an m-level VSB modulated
signal and modulating the interleaved data stream to an n-level VSB modulated signal, n being an
integer larger than m,
wherein the first data stream has synchronization data; and
- transmitting the m-level VSB modulated signal and the n-level VSB modulated signal.

11. A signal receiving method comprising:
- receiving a transmitted VSB modulated signal,
wherein said transmitted VSB modulated signal including an m-level VSB modulated signal
and an n-level VSB modulated signal, n being an integer larger than m;
- demodulating the m-level VSB modulated signal to a first data stream having
synchronization data and demodulate the n-level VSB modulated signal to a demodulated data
stream, the first data stream without being interleaved and the demodulated data stream being
interleaved,
wherein the demodulated data stream is reproduced according to the synchronization data;
and
- de-interleaving the demodulated data stream to a second data stream.